

**A NEW SPECIES OF *ISOTROPIS* BENTH. AND A NEW  
RECORD OF *DAVIESIA* SMITH (FABACEAE: MIRBELIEAE)  
FROM QUEENSLAND**

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**Summary**

*Isotropis foliosa* is described as new and distinguished from its relatives. It is restricted to two known localities in south-eastern Queensland. A key to Queensland species of *Isotropis* is provided. The discovery in Queensland of *Daviesia arthropoda* F.Muell., a central Australian species, is reported.

*Isotropis* Benth. is a genus of about a dozen species distributed in western, central and north-eastern Australia. Although belonging to the endemic Australian tribe *Mirbelieae*, the genus is somewhat anomalous, and its position within the tribe is uncertain (Crisp & Weston 1987). During a recent visit to the Queensland Herbarium, my attention was drawn to an apparently undescribed species of *Isotropis*. Subsequent examination of a population in the field confirmed its novel status.

The newly discovered species, while showing all the essential characters of *Isotropis*, is remarkable in two respects. One is that it extends the known range of the genus to the south in eastern Australia. The other is that its leaves are more developed than those of any of its congeners.

***Isotropis foliosa* Crisp, sp. nov.**

Suffrutex ad 0.4 m altus cinereo-sericeus glabrescens. Foliis unifoliolatis. Foliolo deflexo ovato, 12-35 mm longo, 10-23 mm lato, herbaceo. Floribus 12-15 mm longis, 2-10 vel magis in racemis terminalibus (folio oppositis). Calyce 8-11 mm longo, cinereo-sericeo, paene ad basin in labium supernum lineare emarginatum et lobos tres inferos angustotriangulares diviso. Vexillo latissime ovato, ca 13 mm longo, ca 16 mm lato; alis angustobovatis, ca 13 mm longis; carina semi-elliptica, ca 12 mm longa. Staminibus 10 liberis unifloribus; antheris versatilibus. Ovario ovulis plurimis. Legumine immaturo oblique angustobovoido, turgido, 15-25 mm longo, 4-6 mm lato. **Typus:** Queensland, D'Aguilar Range, ca 13 km NE of Ipswich, 29 Aug 1986, M.D. Crisp 7834 & I.R. Telford (holo: CBG; iso: BRI,K).

Subshrub with several freely branched stems arising to 40 cm from a woody rootstock; initially grey-sericeous, glabrescent. Leaves scattered, unifoliolate. Leaflet deflexed, ovate, obtuse or acute, slightly undulate, truncate or very obtuse at the base, 12-35 mm × 10-23 mm, sparsely sericeous, glabrescent, thin, soft, green. Petiole ascending, slender, 7-15 mm long. Petiolule geniculate at junction with petiole, ca 1 mm long. Stipules inconspicuous, subulate, 1-2 mm long. Seedling leaves similar but smaller. Leaflet ca 10 mm × 7 mm. Petiole 4-6 mm long. Inflorescence a terminal (leaf-opposed) raceme, with 2-10 or more flowers. Rachis 4-15 cm long. Bracts narrow-triangular, 2-3 mm long. Anthesis acropetal, one flower open at a time. Flower 12-15 mm long. Pedicel 6-9 mm long. Bracteoles situated at summit of pedicel, subulate, ca 1.5 mm long. Calyx divided to near base into an upper lip and three lower lobes, grey-sericeous; tube ca 2 mm long; lobes very slightly imbricate; upper lip linear, emarginate, 6-9 mm long; lower lobes narrow-triangular, equal to upper lip, acute. Corolla: standard very broad-ovate, retuse, slightly cordate, ca 13 mm × 16 mm including 2.5 mm claw, orange with purple veins and a bright yellow spot at base; wings narrow-obovate, auriculate, ca 13 mm × 4 mm including 3 mm claw, orange-red, darker towards apex; keel half elliptic, falcate, auriculate, ca 12 mm × 5 mm including 2.5 mm claws, dark red towards apex, pink towards base. Stamens 10, free, ± uniform; anthers versatile, with a conspicuous connective, ca 1 mm long. Ovary shortly stipitate, fusiform, densely white-villous; ovules

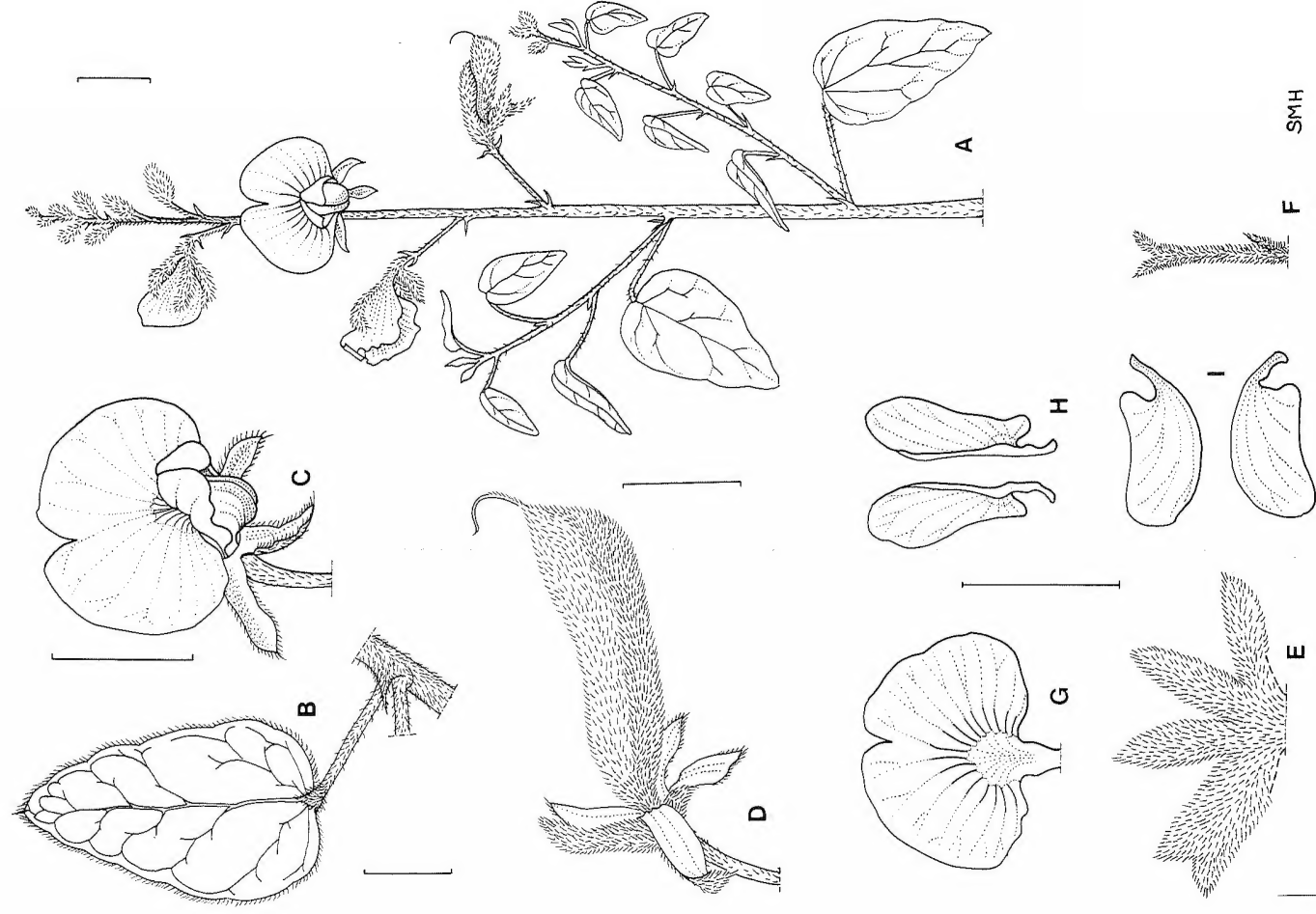


Fig. 1. *Isotropis filiosa*: A. flowering shoot. B. leaf, upper surface. C. flower. D. immature pod. E. calyx, opened out, upper lip at left. F. pedicel with bract and bracteoles. G. standard petal. H. wing petals. I. keel petals. All scale bars represent 1 cm. All from Crisp 7834 (the type).

numerous; style slender, incurved, lower half villous; stigma small, terminal. Immature pod obliquely narrow-obovoid, turgid, tapered at both ends, beaked with the persistent style, 15–25 mm × 4–6 mm (not including beak or stipe). Stipe *ca* 2 mm long; covered with fine, white, slightly spreading hairs. Seed not seen. **Fig. 1.**

**Specimens examined.** Queensland. MORETON DISTRICT: D'Aguiar Range, *ca* 13 km NE of Ipswich, between Kholo Creek and Wirrabara Road, 5 km E of Mt Crosby summit, 27°32'S, 152°32'E, Aug 1986, *Crisp* 7834 & *Telford* (BRI,CBG, K), *Crisp* 7835 & 7836 (CBG); foothills of D'Aguiar Range, 4 km S of Mt Glorious, 27°21'S, 152°43'E, Sep 1982, *Young* 611 (BRI; K,LE,MEXU,MO,NSW,SP *n.v.*).

**Habitat:** On foothill slopes vegetated by tall open eucalypt forest. At the type locality, the population is scattered over a steep west-facing midslope, on skeletal to very stony clay-loam. The dominant trees include *Eucalyptus maculata*, *E. microcorys*, *E. intermedia*, grey gums, ironbarks and *Lophostemon confertus*. The understorey is mostly dominated by *Imperata cylindrica*.

**Affinities:** *Isotropis foliosa* differs from all other species in the genus in its manifestly leafy appearance. To some extent, it resembles the central Australian *I. atropurpurea*, which has a comparable habit and similarly shaped leaves. However, *I. atropurpurea* differs in being conspicuously tomentose, rather thick in all its vegetative parts, and in having smaller flowers (8–10 mm long). There are four other species of *Isotropis* in Queensland: *I. filicaulis* Benth., *I. parviflora* Benth., *I. wheeleri* F.Muell. and *I. winneckeii* F.Muell. None has flowers more than 10 mm long and all have inconspicuous, narrow (mostly linear) leaves.

**Conservation status:** Endangered, coded 2E (criteria from Leigh *et al.* 1984). As this species is known from only two very small populations, it must be considered endangered. In the Mt Glorious area, it was 'recorded from only one very small area' (label of *Young* 611). At the type locality, the population consists of perhaps 50 plants. It is in State Forest, subject to management practices such as logging and prescribed burning. In fact, the site had been fired within the previous few months; fortunately, the plants of *I. foliosa* were sprouting from their rootstock. A Scout camp adjacent to the type locality puts additional pressure on the population. Cuttings have been taken with the intention of establishing the species at the Australian National Botanic Gardens.

**Etymology:** The specific epithet is Latin, meaning leafy. In *I. foliosa*, the leaves are larger and more obvious than in any other species of *Isotropis*, many of which have leaves reduced to phyllodes.

#### Key to Queensland species of *Isotropis*

1. Flowers 12–15 mm long. Leaves conspicuous, ovate, 10–23 mm broad. South-eastern Qld..... **I. foliosa**
  - Flowers 5–10 mm long. Leaves inconspicuous, linear or rarely narrow-elliptic, mostly less than 5 mm broad..... 2
2. Leaves not noticeably unifoliolate; petiole 0–3 mm long. Plant tomentose. Arid interior..... **I. wheeleri**
  - Leaves noticeably unifoliolate by an articulation near the petiole apex; petiole 2–10 mm long. Plant sericeous to glabrescent..... 3
3. Leaflet blade 6–10 mm long. Body of pod constricted near base. Arid interior..... **I. winneckeii**
  - Leaflet blade 10–40 mm long. Pod tapered at base but not constricted above it. Near-coastal regions..... 4
4. Flowers subtended by bracts in longish (to 8 cm) open racemes. Central and south-eastern Qld ..... **I. filicaulis**
  - Flowers axillary or leaf-opposed. Gulf of Carpentaria..... **I. parviflora**

*Daviesia arthropoda* in Queensland

*Daviesia arthropoda* F.Muell., Fragm. 8: 225 (1874). Type: In monte Olgae, *E.Giles* (holo: MEL).

This is a rare species of central Australian sand dunes. Until recently, it had been recorded only from the south-western corner of the Northern Territory, the immediately adjacent part of Western Australia and the Maralinga area in South Australia (Crisp 1981, Weber 1986). Now, an old unidentified collection by S.T. Blake from western Queensland has been located in the Queensland Herbarium. The material, which is in fruit, appears typical for *D. arthropoda* and comes from the usual sand dune habitat. This find is remarkable because it represents an extension of some 1000 km to the known range of what is still a rare plant.

*Daviesia arthropoda* is closely related to *D. ulicifolia*. For a key, descriptions and illustrations of these species, see Crisp (1981) or Weber (1986).

Queensland. GREGORY SOUTH/MITCHELL DISTRICT BOUNDARY: Between Retreat and Jundah, on low sandhill, Jul 1936, *Blake* 12071 (BR1).

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